WHAT IS CLAIMED IS:

1. A light diffusing plate comprising:

a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas, each having a circular form a center of which is coincident with an optical axis of each of said plurality of microlenses; and

a light shield layer formed on another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein when a refractive index of said lens substrate is represented by n; a thickness of said lens substrate by t; a diameter of each of said plurality of light exit areas by R; and a size of each of said plurality of microlenses by Sr, the following formula is satisfied:

$Sr \geq 2t \times \tan\theta + R$ (with the proviso that $\theta = \sin^{-1}(1/n)$).

2. The light diffusing plate according to claim 1, wherein said plurality of microlenses are either in circular form when viewed from a direction of the optical axis and are arranged in a closest packing state or in hexagonal form when

viewed from the direction of the optical axis and are arranged in a hexagonal close-packed state.

3. The light diffusing plate according to claim 1, further comprising an anti-reflective layer formed at a light exit side than said light shield layer, and covering other area than said plurality of light exit areas.

4. The light diffusing plate according to claim 1, wherein said refractive index of said lens substrate is between 1.4 and 2.

5. A liquid crystal display apparatus comprising:

a liquid crystal display panel;

a backlight section for causing a collimated light to be incident on said liquid crystal display panel; and

a light diffusing plate for diffusing an image-bearing collimated light which has passed through said liquid crystal display panel,

wherein said light diffusing plate comprises a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas, each having a circular form a center of which is coincident with an optical axis of each of said plurality of microlenses; and

a light shield layer formed on another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein when a refractive index of said lens substrate is represented by n; a thickness of said lens substrate by t; a diameter of each of said plurality of light exit areas by R; and a size of each of said plurality of microlenses by Sr, the following formula is satisfied:

$Sr \geq 2t \times \tan\theta + R$ (with the proviso that $\theta = \sin^{-1}(1/n)$).

6. A rear projection apparatus comprising a rear projection engine for issuing an image-bearing diffused light and a screen on which the image-bearing diffused light is incident and an image of the image-bearing diffused light is displayed, said screen including a Fresnel lens and a light diffusing plate,

wherein said light diffusing plate comprises a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas, each having a circular form a center of which is coincident with an optical axis of each of said plurality of microlenses; and

a light shield layer formed on another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein when a refractive index of said lens substrate is represented by n; a thickness of said lens substrate by t; a diameter of each of said plurality of light exit areas by R; and a size of each of said plurality of microlenses by Sr, the following formula is satisfied:

$Sr \geq 2t \times \tan\theta + R$ (with the proviso that $\theta = \sin^{-1}(1/n)$).

7. A light diffusing plate comprising:

a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas each having a rectangular form a center of which is coincident with an optical axis of each of said plurality of microlenses; and

a light shield layer formed on another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein, when a refractive index of said lens substrate is represented by n; a thickness of said lens substrate by t; a length of a side of each of said plurality of light exit areas by A; a length of another side of each of said plurality of light exit area by B; a size of each of said plurality of microlenses in a direction of said length A represented by Sa; and a size of each of said plurality of microlenses in a direction of said length B represented by Sb, the following formulae are satisfied:

$Sa \geq 2t \times \tan\theta + A$

$Sb \geq 2t \times \tan\theta + B$ (with the proviso that $\theta = \sin^{-1}(1/n)$).

8. The light diffusing plate according to claim 7,

wherein said plurality of microlenses are either in square form viewed from a direction of the optical axis and are arranged in a square closed-packed state or in rectangular form viewed from the direction of the optical axis and are arranged in a rectangular closed-packed state.

9. The light diffusing plate according to claim 7, further comprising an anti-reflective layer formed at a light exit side than said light shield layer, and covering other area than said plurality of light exit areas.

10. The light diffusing plate according to claim 7, wherein the refractive index of said lens substrate is between 1.4 and 2.

11. A liquid crystal display apparatus comprising:

a liquid crystal display panel;

a backlight section for causing a collimated light to be incident on said liquid crystal display panel; and

a light diffusing plate for diffusing an image-bearing collimated light which has passed through said liquid crystal display panel,

wherein said light diffusing plate comprises a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas each having a rectangular form a center of which is coincident with an optical axis of each of said plurality of microlenses; and

a light shield layer formed on another surface of the lens substrate reverse to avoid plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein, when a refractive index of said lens substrate is represented by n; a thickness of said lens substrate by t; a length of a side of each of said plurality of light exit areas

by A; a length of another side of each of said plurality of light exit area by B; a size of each of said plurality of microlenses in a direction of said length A represented by Sa; and a size of each of said plurality of microlenses in a direction of said length B represented by Sb, the following formulae are satisfied:

$$Sa \geq 2t \times \tan\theta + A$$

$$Sb \geq 2t \times \tan\theta + B$$ (with the proviso that $\theta = \sin^{-1}(1/n)$).

12. A rear projection apparatus comprising a rear projection engine for issuing an image-bearing diffused light and a screen on which the image-bearing diffused light is incident and an image of the image-bearing diffused light is displayed, said screen including a Fresnel lens and a light diffusing plate,

wherein said light diffusing plate comprises a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas each having a rectangular form a center of which is coincident with an optical axis of each of said plurality of microlenses; and

a light shield layer formed on another surface of the lens substrate reverse to avoid plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein, when a refractive index of said lens substrate is represented by n; a thickness of said lens substrate by t; a length of a side of each of said plurality of light exit areas by A; a length of another side of each of said plurality of light exit area by B; a size of each of said plurality of microlenses in a direction of said length A represented by Sa; and a size of each of said plurality of microlenses in a direction of said length B represented by Sb, the following formulae are satisfied:

$Sa \geq 2t \times \tan\theta + A$

$Sb \geq 2t \times \tan\theta + B$ (with the proviso that $\theta = \sin^{-1}(1/n)$).

13. A light diffusing plate comprising:

a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas disposed on another surface of said lens substrate reverse to said plurality of microlenses, and having an optical axis of each of said plurality of microlenses; and

a light shield layer formed on said another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein a form of each of said plurality of microlenses is a part of an ellipsoid shown in the following formula (1),

wherein an accentricity ε of said ellipsoid is shown in the following formula (2) and

wherein, in said ellipsoid, a focal point away from a side into which light is launched is coincident with a position of each of said plurality of light exit areas:

$$X^2/a^2 + y^2/a^2 + z^2/c^2 = 1 \qquad (1)$$

$$\varepsilon = (c^2 - a^2)^{1/2}/c = 1/n \qquad (2)$$

wherein x and y represent axis on the surface of the lens substrate; z represents the optical axis; and n represents a refractive index of a material forming said plurality of microlenses.

14. The light diffusing plate according to claim 13, wherein said plurality of microlenses are either in circular form viewed from a direction of the optical axis and are arranged in a closest packing state, or in hexagonal form viewed from the direction of the optical axis and are arranged in a hexagonal close-packed state.

15. The light diffusing plate according to claim 13, further comprising an anti-reflective layer formed on a light exit side, and covering an area other than said plurality of light exit areas.

16. The light diffusing plate according to claim 13, wherein the refractive index of said lens substrate is between 1.4 and 2.

17. A liquid crystal display apparatus comprising:

a liquid crystal display panel;

a backlight section for causing a collimated light to be incident on said liquid crystal display panel; and

a light diffusing plate for diffusing an image-bearing collimated light which has passed through said liquid crystal display panel,

wherein said light diffusing plate comprises a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas disposed on another surface of said lens substrate reverse to said plurality of microlenses, and having an optical axis of each of said plurality of microlenses; and

a light shield layer formed on said another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein a form of each of said plurality of microlenses is a part of an ellipsoid shown in the following formula (1),

wherein an accentricity ε of said ellipsoid is shown in the following formula (2) and

wherein, in said ellipsoid, a focal point away from a side into which light is launched is coincident with a position of each of said plurality of light exit areas:

$$X^2/a^2 + y^2/a^2 + z^2/c^2 = 1 \qquad (1)$$

$$\varepsilon = (c^2 - a^2)^{1/2}/c = 1/n \qquad (2)$$

wherein x and y represent axis on the surface of the lens substrate; z represents the optical axis; and n represents a refractive index of a material forming said plurality of microlenses.

18. A rear projection apparatus comprising a rear projection engine for issuing an image-bearing diffused light and a screen on which the image-bearing diffused light is incident and an image of the image-bearing diffused light is displayed, said screen including a Fresnel lens and a light diffusing plate,

wherein said light diffusing plate comprises a lens substrate;

a plurality of microlenses disposed on a surface of said lens substrate;

a plurality of light exit areas disposed on another surface of said lens substrate reverse to said plurality of microlenses, and having an optical axis of each of said plurality of microlenses; and

a light shield layer formed on said another surface of the lens substrate reverse to said plurality of microlenses, and covering other area than said plurality of light exit areas,

wherein a form of each of said plurality of microlenses is a part of an ellipsoid shown in the following formula (1),

wherein an accentricity ε of said ellipsoid is shown in the following formula (2) and

wherein, in said ellipsoid, a focal point away from a side into which light is launched is coincident with a position of each of said plurality of light exit areas:

$$X^2/a^2 + y^2/a^2 + z^2/c^2 = 1 \qquad (1)$$

$$\varepsilon = (c^2 - a^2)^{1/2}/c = 1/n \qquad (2)$$

wherein x and y represent axis on the surface of the lens substrate; z represents the optical axis; and n represents a refractive index of a material forming said plurality of microlenses.